

AN OBSERVATION OF NEST BURROW THEFT IN THE DRAGON LIZARD *GEMMATOPHORA LONGIROSTRIS*

By LINDLEY MCKAY

15 Prospect Terrace, Highgate Hill, Qld, 4101

and

ROHAN H. CLARKE

Department of Zoology, La Trobe University, Bundoora, 3083

Egg-laying behaviour in Australian dragons (*Agamidae*) is infrequently observed in the wild, with only a handful of records known to the authors (e.g. Hudson, P. 1977, Cogger 1978). More numerous and detailed descriptions are available for egg-laying behaviour in captive dragons (e.g. Hudson 1977, Weigel 1989, Harlow & Harlow 1997), however these are unlikely to accurately reflect many natural behaviours. In captivity inter and intra-specific interactions will be limited by the number of species and density of individuals housed together, whilst vigilance against predators and competitors is likely to be greatly reduced because of familiarity amongst captors and an absence of many reinforcement stimuli. It is therefore important to document behaviours observed under natural conditions to better understand how individuals interact with con-specifics and individuals of other species. Here we report an instance of burrow excavation by *Gemmatophora longirostris*, an interaction between the burrow owner and a single *Varanus gilleni*, and burrow theft and subsequent egg laying by a second *G. longirostris*.

G. longirostris is a slender long-limbed dragon with a long snout and a very

long tail. It is widely distributed from the central coast of Western Australia east to Central Australia, occupying arid and semi-arid habitats, especially in the vicinity of eucalypt-lined ephemeral watercourses. *G. longirostris* reproductive biology and behaviour is poorly known although gravid females have been reported in October and February in north-western Australia (Greer 1989). Average clutch sizes are recorded as 4 (Pianka 1986) to 5–6 (Greer 1989), although an early (perhaps erroneous) account states up to 15 eggs are laid (Waite 1929).

On the 24th Nov 2000, whilst camped on the southern edge of Lake Tobin, Great Sandy Desert, WA, 21° 44'S, 125° 40'E, an adult *G. longirostris* was noticed scratching the substrate in the shade at the base of a Desert Oak (*Allocasuarina decaisneana*) at 1200 Summer WST. The animal was readily identified as a female by its moderate nuchal crest, drab colour and the presence of eggs visible as bulges in its lower belly. It proceeded to excavate a roughly semi-circular hole about 8cm wide and 3cm high, pausing every few minutes to back out and stand at the entrance. Given the gravid state of the animal under observation and, as *G. longirostris* typically sleep on exposed limbs in warm conditions (Wilson and

Knowles 1988), we surmised this burrow was for egg-laying purposes. At about 1430, a *Varanus gilleni* descended the trunk of the nearest Desert Oak and moved quickly towards the *G. longirostris*, which was at its burrow entrance. The *G. longirostris* arched its body and inflated its chest, but moved away from the hole. The *V. gilleni* then entered the burrow, before backing out and moving away. The *G. longirostris* returned to the hole within a minute and continued digging. Several male *G. longirostris*, identified by the presence of large nuchal crests and bright colouration, also approached the female excavating the burrow, however in these instances she continued digging.

At 1630 another female, approximately equal in size to the first, approached arching her back and opening her mouth. The first female returned the display, before the newly arrived female ran at and chased away the first. The pursuit covered a distance of 10 metres. As no direct contact between the two animals was noted the observers were able to keep track of which female was the burrow owner and which was the aggressor. The second female who had not previously been noted burrowing then returned to the hole created by the first female and continued the excavation. As with the first female, it would pause every few minutes to back out and stand at the entrance.

At 1715 the new burrow owner was accidentally disturbed from the hole by one of the authors. The animal's rapid exit from the burrow caused an egg to be pushed to the entrance in the process. After standing at the entrance for approximately 30 seconds the animal pushed this egg back into the burrow with its snout. At this point burrow length was estimated to be 30 cm. Soon after the female began to fill the hole

although this was not complete until after sunset at 1830. At this time the burrow site appeared to be no different to its surrounds, without any indication of scratchings or diggings.

An additional gravid female *G. longirostris* was encountered the following day at Well 36 on the Canning Stock Route (22° 09'S, 125° 27'E). This animal was also observed excavating a burrow although this time in damp sand surrounding a pool of water. In this instance further observations of behaviour were not made.

These incidental observations further our knowledge of nesting behaviour in *G. longirostris*. Observations of at least three gravid females in the process of burrow excavation or egg-laying in November suggest, at least in the northern Great Sandy Desert this is an important laying period, and is in agreement with earlier reports of breeding in the spring and summer months. To the best of our knowledge theft of burrows constructed for egg-laying purposes has not been previously reported in *G. longirostris*. Indeed we can find no reports of this behaviour in any Australian dragon. Given the continuous nature of suitable substrate and extensive areas of shade that presumably offered similar microclimates to the burrow site discussed above we surmise that the observed burrow theft was not the result of limited nest site availability but rather an opportunistic theft.

REFERENCES

COGGER, H.G. 1978. Reproductive cycles, fat body cycles, and socio-sexual behaviour in the mallee dragon, *Amphibolurus fordi* (Lacertilia:

- Agamidae) *Australian Journal of Zoology* 26, 653–672.
- GREER, A. 1989. *The biology and evolution of Australian lizards*. Surrey Beatty & sons.
- HARLOW, P.S., and HARLOW, M.F. 1997. Captive reproduction and longevity in the Eastern Water dragon *Physignathus lesueurii*. *Herpetofauna* 27 (1) 14–19.
- HUDSON, P. 1977. An account of egg-laying by the thorny devil *Moloch horridus* (Gray) *Herpetofauna* 9, 23–24.
- LICHT, P., DAWSON, W., SHOEMAKER, V., and MAIN, A. 1966. Observations on the thermal relations of Western Australian lizards. *Copeia* (1) 97 – 110.
- PIANKA, E. 1986. *Ecology and natural history of desert lizards. Analyses of the ecological niche and community structure*. Princeton University Press. Princeton, New Jersey.
- WAITE, E.R. 1929. *The reptiles and amphibians of South Australia*. (Facsimile, 1993, by the Society for the study of amphibians and reptiles). p117.
- WEIGEL, J. 1989. Maintenance and breeding of the Superb Dragon *Diporiphora superba* at the Australian Reptile Park, Gosford. *International Zoo Yearbook*: 28, 122–126.
- WILSON, S. & KNOWLES, D. 1988 *Australia's Reptiles. A photographic reference to the terrestrial reptiles of Australia*. Collins, Sydney.